

What is claimed is

1. A wire processing apparatus comprising:

a microwave generator for generating microwave;

5 a waveguide for propagating microwave output from the microwave generator in a transmitting space thereof, the waveguide connected to the microwave generator; and

a wire insertion pipe for inserting a coated wire into the interior thereof, the wire insertion pipe disposed in the
10 transmitting space of the waveguide.

2. The wire processing apparatus according to claim 1, further comprising a short plunger disposed in a terminal end position of the transmitting space of the waveguide,

wherein the short plunger includes a movable plate, a rod
15 connected to the movable plate and a fine adjuster adjusting a length of the rod.

3. The wire processing apparatus according to claim 2, wherein by adjusting the length of the rod by means of the fine adjuster to change a position of the movable plate, the wire
20 insertion pipe is disposed at a position away from the terminal end position of the transmitting space of the waveguide by a distance of $(2n-1)/4 \cdot \lambda$ (n : natural number, λ : guide wavelength).

4. The wire processing apparatus according to claim 1, wherein the wire insertion pipe is made of a dielectric material.
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5. The wire processing apparatus according to claim 1, wherein the coated wire, which is composed of a coating insulator

and an electric conductor, is not cross-linked and the coating insulator loosely covers an outer periphery of the electric conductor.

6. The wire processing apparatus according to claim 1,
5 wherein the interior of the wire insertion pipe is in hydrogen gas atmosphere.

7. The wire processing apparatus according to claim 1,
wherein the interior of the wire insertion pipe is in atmospheric atmosphere.

10 8. A wire processing method of recycling a coated wire composed of a coating insulator and an electric conductor by means of a microwave generator, a waveguide connected to the microwave generator and a wire insertion pipe disposed in a transmitting space of the waveguide, the method comprising the
15 steps of:

inserting a tip end of the coated wire into the wire insertion pipe;

disposing the coated wire such that the tip end thereof is located at a predetermined position in the wire insertion pipe;

20 launching microwave to the transmitting space of the waveguide by means of the microwave generator;

separating the tip end of the coated wire into the decomposed coating insulator and the molten electric conductor, and recovering the electric conductor in a state suitable for
25 recycling it; and

sending a new tip end of the coated wire sequentially such that the tip end is always located in the predetermined position

in the wire insertion pipe whenever the tip end is disappeared.

9. The wire processing method according to claim 8, wherein the interior of the wire insertion pipe is in hydrogen gas atmosphere.

5 10. The wire processing method according to claim 8, wherein the interior of the wire insertion pipe is in atmospheric atmosphere.

11. A wire processing method of cross-linking a coated wire composed of a coating insulator and an electric conductor by
10 means of a microwave generator, a waveguide connected to the microwave generator and a wire insertion pipe disposed in a transmitting space of the waveguide, the method comprising the steps of;

launching microwave to the transmitting space of the
15 waveguide by means of the microwave generator;

inserting the coated wire into the wire insertion pipe sequentially; and

cross-linking the coated wire and adhering well the coating insulator to the electric conductor.

20 12. The wire processing method according to claim 8 or 11, further comprising the step of moving a short plunger disposed in a terminal end position of the transmitting space of the waveguide so as to locate the wire insertion pipe at a position away from the terminal end position of the transmitting space
25 of the waveguide by a distance of $(2n-1)/4 \cdot \lambda$ (n: natural number, λ : guide wavelength), before the step of launching microwave.

13. The wire processing method according to claim 8 or 11,

wherein the wire insertion pipe is made of a dielectric material.